star SDK

C++ Software Development Kit

How to Use StarIO in C++ for Linux

Thermal Line Mode Printing

This SDK contains a C++ console program for use on most 32- and 64-bit Linux distributions. The sample code shows how to send commands to Star's POS Printers with StarIO functions.

Linux systems tested on with USB vendor class:

- Ubuntu 10.10 x86/x64

Works with these printer model Series:

- FVP10 (Ver.1.0 or later)
- HSP7000 (Ver.1.0 or later)
- TSP650 (Ver.2.0 or later)
- TSP700II (Ver.2.0 or later)
- TSP800II (Ver.1.0 or later)
- TSP800Rx (Ver.4.3 or later)
- TSP828 (Ver.4.6 or later)
- TUP500 (Ver.1.0 or later)
- TUP900 (Ver.1.2 or later)

Supported Interfaces:

- Serial
- Parallel
- USB
- Ethernet

Functions Include:

- All 1D Barcodes
- All 2D Barcodes
- Drawer Kick
- Text Formatting
- Getting Status

Requirements: Any Linux x86 distributions and the StarIO library must be installed correctly.

NOTE:

- This sample program provides source code and executables for 32-bit and 64-bit.
- If you do not have gcc/g++ installed, you can use (based on your Linux distribution):
    - "apt-get install gcc-c++" or "apt-get install g++"
    - "yum install gcc-g++" or "yum install g++"

  These commands will install the C++ command line compiler. The make file included will require the gcc C++ compiler in order to build the code into binary.
- If you setup your printer is in printer class mode, you may need to use the file under "USB Rules for Linux" to fix your permissions. You have to edit the file to change the username you are using with your application to print.

Table of Contents

About this Manual

This manual is designed to help you understand StarIO and how to build a C++ application to interact with Star Micronics Thermal Line Mode Printers. It is important to understand the basics of the C and C++ language. Although this SDK is for the programming language C/C++, there are other SDKs available at our website in the Developers section. Check the Developers section of our site for the newest SDKs, technical documentation, FAQs, and much more additional resources.

Key Legend:

Warning	⚠	Explains potential issues
Avoid Doing This	🚫	Explains things not to do
Note	💭	Provides important information and tips

CAUTION:

- The information in this manual is subject to change without notice.
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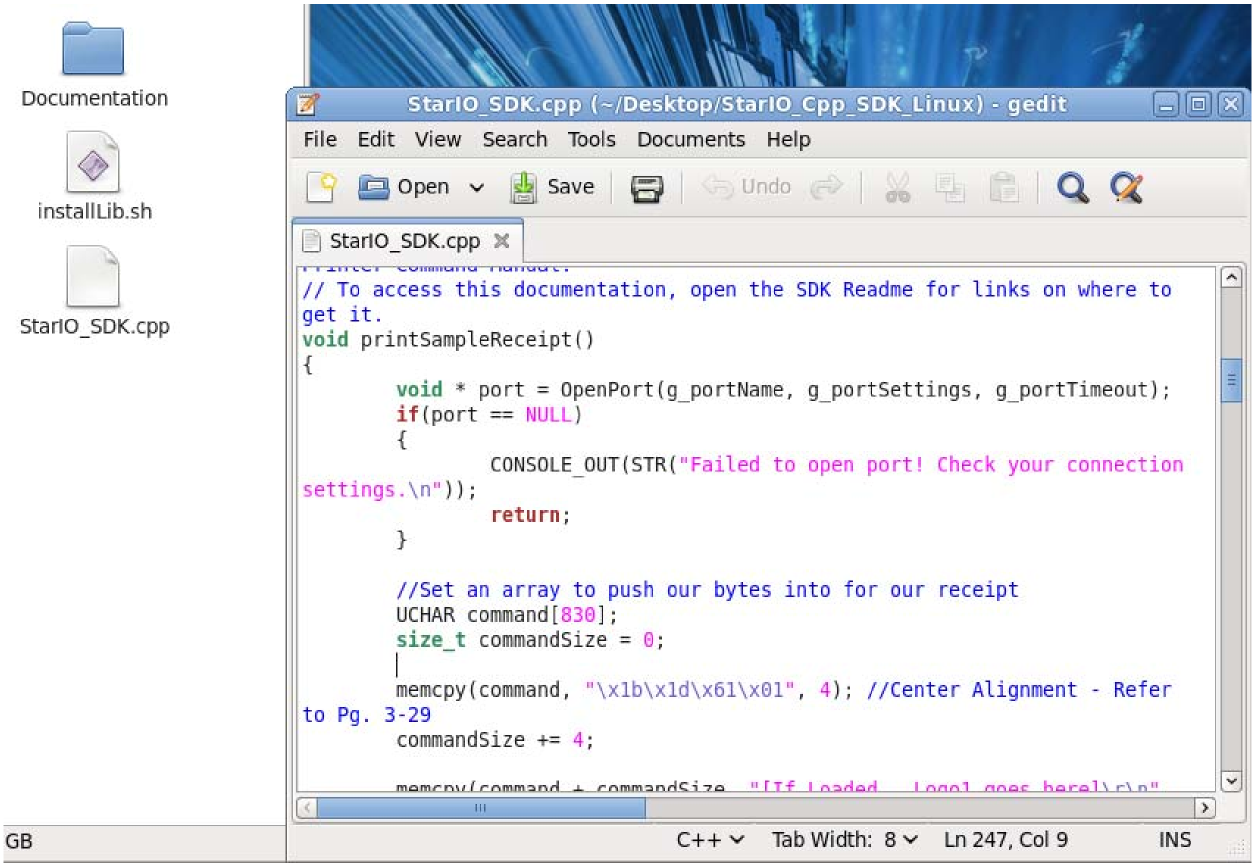
How to compile and run the C++ SDK

This section will explain:

1. How to open the C++ SDK code.
2. Installing StarIO
3. Compiling the project.
4. Running the project.

1. How to open the C++ SDK code:

In Linux, export the "StarIO_Cpp_SDK_Linux" directory to a convenient location.



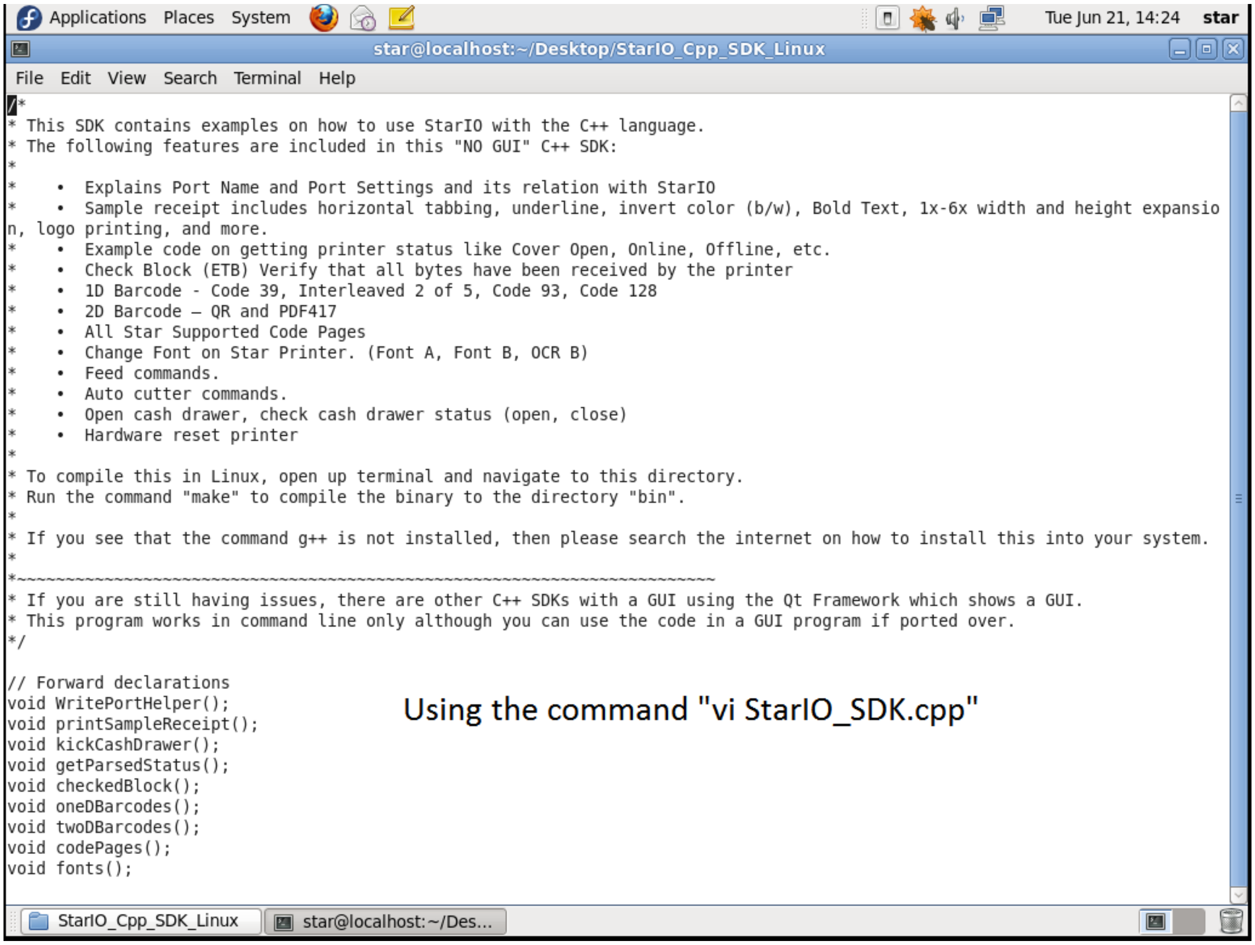
```
Printer Command Manual.
// To access this documentation, open the SDK Readme for links on where to
get it.
void printSampleReceipt()
{
        void * port = OpenPort(g_portName, g_portSettings, g_portTimeout);
        if(port == NULL)
        {
                CONSOLE_OUT(STR("Failed to open port! Check your connection
settings.\n"));
                return;
        }

        //Set an array to push our bytes into for our receipt
        UCHAR command[830];
        size_t commandSize = 0;

        memcpy(command, "\x1b\x1d\x61\x01", 4); //Center Alignment - Refer
to Pg. 3-29
        commandSize += 4;

        memcpy(command + commandSize, "[If Loaded.. Logo1 goes here]\r\n"
```

Open the file named "StarIO_SDK.cpp" with your favorite code editor. You can also edit it via the terminal by navigating to the SDK folder and typing "vi StarIO_SDK.cpp". Using the visual editor in terminal, you can use its commands to look around and study particular parts of the code that are most important to you. Take note of printSampleReceipt() and the other functions which are named according to command.


Applications Places System
Tue Jun 21, 14:24 star
star@localhost:~/Desktop/StarIO_Cpp_SDK_Linux
File Edit View Search Terminal Help
StarIO_Cpp_SDK_Linux
star@localhost:~/Des...

```
/*
* This SDK contains examples on how to use StarIO with the C++ language.
* The following features are included in this "NO GUI" C++ SDK:
*
*    •  Explains Port Name and Port Settings and its relation with StarIO
*    •  Sample receipt includes horizontal tabbing, underline, invert color (b/w), Bold Text, 1x-6x width and height expansio
n, logo printing, and more.
*    •  Example code on getting printer status like Cover Open, Online, Offline, etc.
*    •  Check Block (ETB) Verify that all bytes have been received by the printer
*    •  1D Barcode - Code 39, Interleaved 2 of 5, Code 93, Code 128
*    •  2D Barcode – QR and PDF417
*    •  All Star Supported Code Pages
*    •  Change Font on Star Printer. (Font A, Font B, OCR B)
*    •  Feed commands.
*    •  Auto cutter commands.
*    •  Open cash drawer, check cash drawer status (open, close)
*    •  Hardware reset printer
*
* To compile this in Linux, open up terminal and navigate to this directory.
* Run the command "make" to compile the binary to the directory "bin".
*
* If you see that the command g++ is not installed, then please search the internet on how to install this into your system.
*
*~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
* If you are still having issues, there are other C++ SDKs with a GUI using the Qt Framework which shows a GUI.
* This program works in command line only although you can use the code in a GUI program if ported over.
*/

// Forward declarations
void WritePortHelper();
void printSampleReceipt();
void kickCashDrawer();
void getParsedStatus();
void checkedBlock();
void oneDBarcodes();
void twoDBarcodes();
void codePages();
void fonts();
```

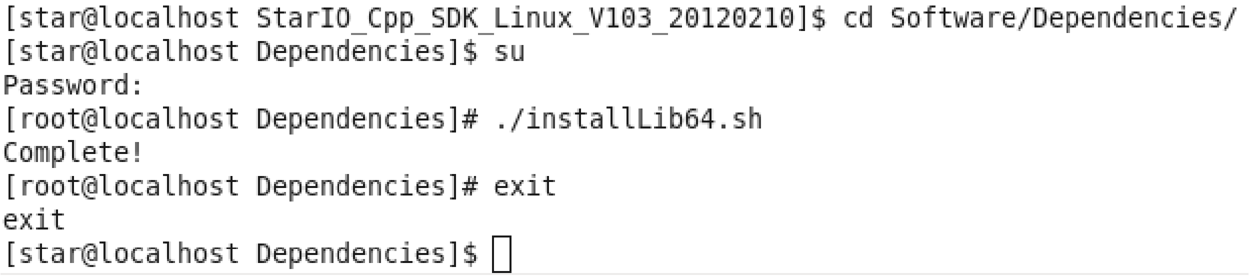
Using the command "vi StarIO_SDK.cpp"

The above is a screen shot of vi editing the main code located in "StarIO_SDK.cpp"

2. Installing StarIO:

Browse to the SDK directory "Software/Dependencies" and run the bash script named "installLib86.sh" if you are on a Linux 32-bit system or "installLib64.sh" if you are on a 64-bit system. To run it, login as root and issue this command in the terminal "./installLib86.sh" once you change to this directory. This will copy the library file to the "/usr/lib" directory and header file to the "/usr/include" directory.

Your application can now print to Star's POS Printers!



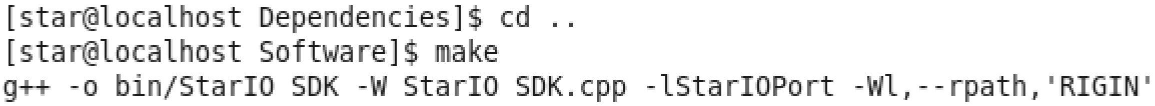
```
[star@localhost StarIO_Cpp_SDK_Linux_V103_20120210]$ cd Software/Dependencies/
[star@localhost Dependencies]$ su
Password:
[root@localhost Dependencies]# ./installLib64.sh
Complete!
[root@localhost Dependencies]# exit
exit
[star@localhost Dependencies]$ 
```

3. Compiling the project:

Open a terminal window and navigate to the SDK directory. Type the command “make” and you will see the g++ compiler command.

Be sure to have gcc installed before attempting to compile as it will not work without it.

- “apt-get install gcc-c++” or “apt-get install g++”
- “yum install gcc-g++” or “yum install g++”



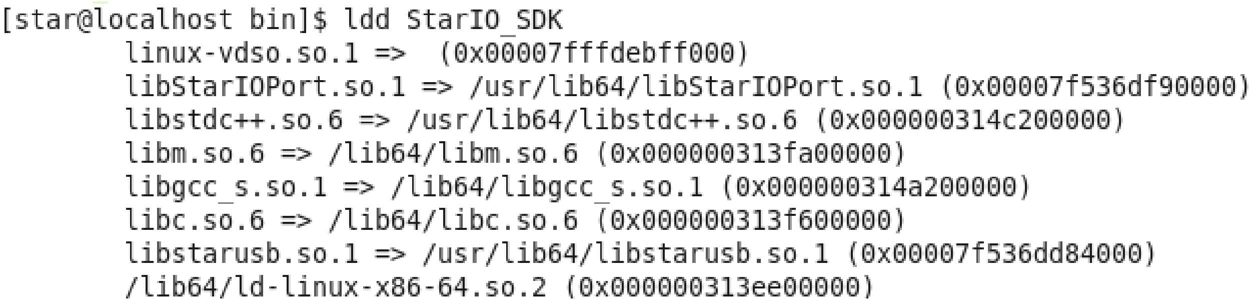
```
[star@localhost Dependencies]$ cd ..
[star@localhost Software]$ make
g++ -o bin/StarIO SDK -W StarIO SDK.cpp -lStarIOPort -Wl,--rpath,'RIGIN'
```

Shows a make command being issued to compile the binary to the folder “bin”

4. Running the project:

To run the project, first check if you have installed libStarIOPort.so correctly.

You can do this by navigating to the SDK directory and going into the “bin” folder. Then, run the command “ldd StarIO_SDK” which shows a list like the picture below:

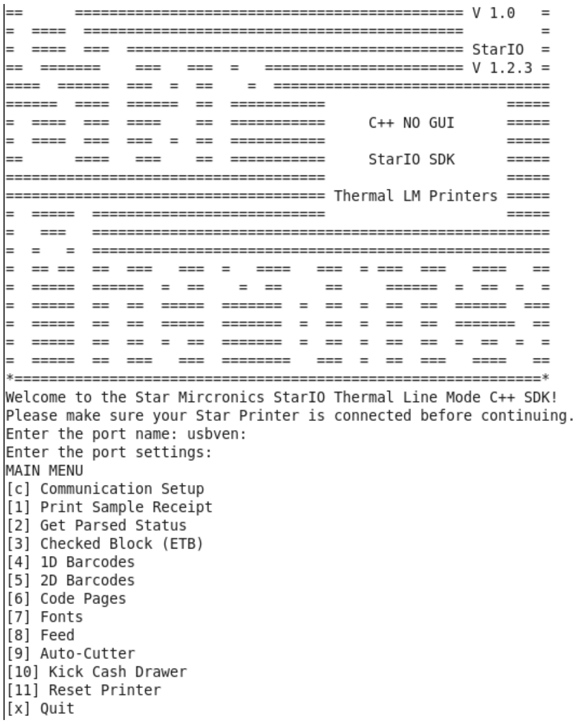


```
[star@localhost bin]$ ldd StarIO_SDK
        linux-vdso.so.1 =>  (0x00007fffdebff000)
        libStarIOPort.so.1 => /usr/lib64/libStarIOPort.so.1 (0x00007f536df90000)
        libstdc++.so.6 => /usr/lib64/libstdc++.so.6 (0x000000314c200000)
        libm.so.6 => /lib64/libm.so.6 (0x000000313fa00000)
        libgcc_s.so.1 => /lib64/libgcc_s.so.1 (0x000000314a200000)
        libc.so.6 => /lib64/libc.so.6 (0x000000313f600000)
        libstarusb.so.1 => /usr/lib64/libstarusb.so.1 (0x00007f536dd84000)
        /lib64/ld-linux-x86-64.so.2 (0x000000313ee00000)
```

Shows the dependencies that are needed for that binary to run in Linux

Once the shared object is correctly placed, you can now change directory to the SDK build directory called “bin” and run the SDK binary by issuing the command ./StarIO_SDK

Use number input to navigate through the menus to perform the commands you want to do. This would be a great time to put the printer into Hex Dump mode and print out the commands being sent to the printer in conjunction with the programmers’ manual, as you can easily study all commands sent to the printer.



```
==      ============================================= V 1.0   =
=  ====  ============================================         =
=  ====  ===  ======================================= StarIO  =
==  =======    ===   ===  =   ======================= V 1.2.3 =
====  ======  ===  =  ==    =  ================================
======  ====  ======  ==  ===========                     =====
=  ====  ===  ====    ==  ===========     C++ NO GUI      =====
=  ====  ===  ===  =  ==  ===========                     =====
==      ====   ===    ==  ===========     StarIO SDK      =====
=====================================                     =====
===================================== Thermal LM Printers =====
=  =====  ===========================                     =====
=   ===   =====================================================
=  =   =  =====================================================
=  == ==  ==  ===   ===  =   ====   ===  = ===  ===   ====   ==
=  =====  ======  =  ==    =  ==     ==     ======  =  ==  =  =
=  =====  ==  ==  =====  =======  =  ==  =  ==  ==  ======  ===
=  =====  ==  ==  =====  =======  =  ==  =  ==  ==  =======  ==
=  =====  ==  ==  =  ==  =======  =  ==  =  ==  ==  =  ==  =  =
=  =====  ==  ===   ===  ========   ===  =  ==  ===   ====   ==
*=============================================================*
Welcome to the Star Mircronics StarIO Thermal Line Mode C++ SDK!
Please make sure your Star Printer is connected before continuing.
Enter the port name: usbven:
Enter the port settings:
MAIN MENU
[c] Communication Setup
[1] Print Sample Receipt
[2] Get Parsed Status
[3] Checked Block (ETB)
[4] 1D Barcodes
[5] 2D Barcodes
[6] Code Pages
[7] Fonts
[8] Feed
[9] Auto-Cutter
[10] Kick Cash Drawer
[11] Reset Printer
[x] Quit
```

Using the SDK with Star Micronics Printers

Please make sure you have a compatible Star Micronics Thermal Line Mode Printer model.

Port Name and Interface Relation:

StarIO uses specific port names to identify what port will be used. These are very important to understand because not following the naming convention correctly will fail to communicate with the printer.

Interface	Port Name	Port Settings
Serial	/dev/ttySO	9600,n,8,1,h
Parallel	/dev/parport0	N/A
USB (Vendor Class)	usbven:	N/A
USB (Printer Class)	usbprn:”Queue Name”	N/A
Ethernet (TCP/IP)	tcp:”IP Address”	N/A

If using *USB* interface and the printer is in *printer class mode*, once you install the printer drivers, you will have a queue name for the printer.

If Printer Queue Name = Star TSP700II (TSP743II)

Then we would put *"usbprn:Star TSP700II (TSP743II)"* as the Port Name.

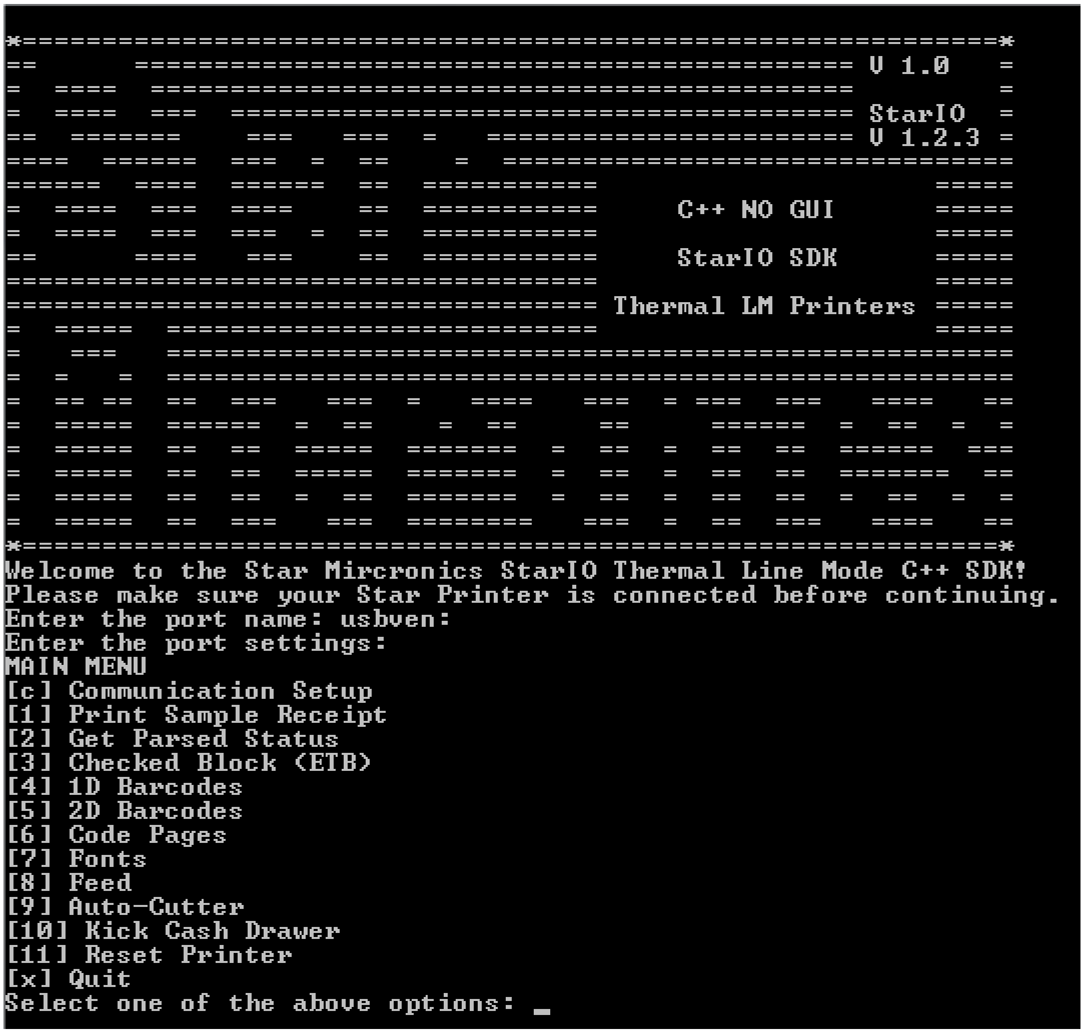
If using *USB* interface and the printer is in *vendor class mode*,
a Port number is not required. Just put “usbven:” as the Port Name.

"/dev/ttySn" n = your port number (0, 1, 2, 3, etc)

"/dev/parportN" N = your port number (0, 1, 2, 3, etc)

"tcp:192.168.222.244" Enter TCP IP Address of the Ethernet printer.

When you first launch the application in the console, you will be asked for a port name and port settings. Please review the above Port Name choices you can use that will connect to your Star printer.



```
V 1.0
StarIO
V 1.2.3
C++ NO GUI
StarIO SDK
Thermal LM Printers
Welcome to the Star Mircronics StarIO Thermal Line Mode C++ SDK!
Please make sure your Star Printer is connected before continuing.
Enter the port name: usbven:
Enter the port settings:
MAIN MENU
[c] Communication Setup
[1] Print Sample Receipt
[2] Get Parsed Status
[3] Checked Block (ETB)
[4] 1D Barcodes
[5] 2D Barcodes
[6] Code Pages
[7] Fonts
[8] Feed
[9] Auto-Cutter
[10] Kick Cash Drawer
[11] Reset Printer
[x] Quit
Select one of the above options: _
```

Shows user entering “usbven:” for a USB Vendor Class Star Printer.

After you enter in connection details for your printer, you will be greeted with a menu to perform Star commands. Have some fun with this and try different choices to fully exercise this SDK’s functionality.

To change the printer connection settings, you can hit “c” and then “Enter” to return to the Port Name and Port Settings input screen.

To quit you can put “x” and hit “Enter” or any one of the choices shown in the above menu.

Overview of how the C++ SDK is designed

This overview will touch briefly on key components of the SDK and how to find them.

Focus on the file “StarIO_SDK.cpp” which contains the business logic and StarIO commands.

The project has a Linux shared object (.so) library file called libStarIOPort.so which is a library for StarIO commands and communication with the printer that can be used with most Linux 32-bit distributions. Include this file into your application in order to expose StarIO and its methods to your program. It is best to install the library like the bash script “installLib.sh” completes for you. This ensures all programs on Linux are using the same StarIO to communicate to the printer.

Look through the code for comments and you will see how easily it is broken down step by step for you. Almost all functions in this SDK have comments above to explain what the function and code is doing.

If you would like to quickly find a snippet of code that this application performs, use vi to do a FIND on the particular command you wish to know. For example, to find the 2D Barcode commands, you can type the forward slash followed by your search criteria. Hit enter and it will jump to the first occurrence of your search string. You can find this and many other commands for vi by clicking here.

StarIO – (libStarIOPort.so)

How to include StarIO into your project:

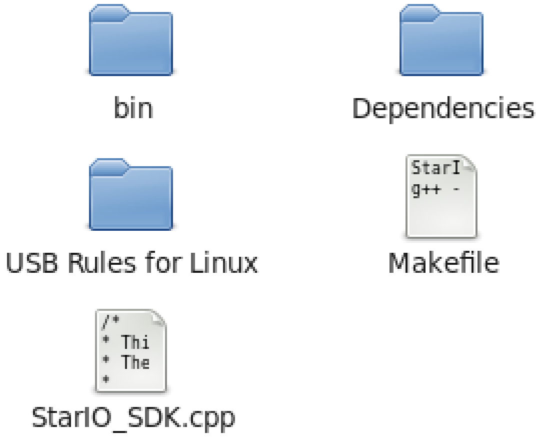
The file libStarIOPort.so is a dynamically linking library that you can include into your C++ projects to expose StarIO methods in Linux. The file StarIOPort.h is a header to expose the functions of this library and must be used with Platform.h and Linux.h.

To include this lib into your project:

1. Open up your Main code
2. At the very top of your code where your includes are, place the following line:

```
#include <starmicronics/StarIOPort.h>
```

3. Now open up this SDK and in the directory "Dependencies" there are two install scripts to copy the 32 or 64 library.
4. Run the script.
5. Now you can access all of StarIO's methods!



This SDK contains these files

WARNING: Make sure libStarIOPort.so is linked correctly to your binary as it will need this to execute StarIO communication with Star POS Printers. The StarIO library files are automatically copied to the "/user/include" directory and the header file to the "/usr/include" directory.

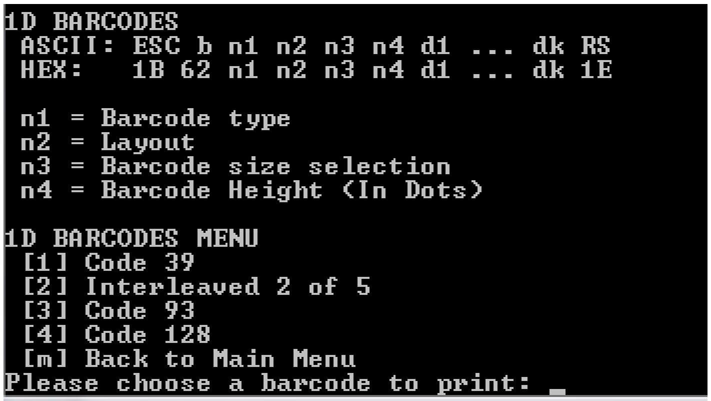
Functionality

StarIO Printer Commands

All of these commands can be found in the Star Thermal Line Mode Spec Manual.

The C++ SDK also has page and section references to this document for more information so please download that manual and study it if you need more detail on a specific command.

1D Barcodes



```
1D BARCODES
 ASCII: ESC b n1 n2 n3 n4 d1 ... dk RS
 HEX:   1B 62 n1 n2 n3 n4 d1 ... dk 1E

 n1 = Barcode type
 n2 = Layout
 n3 = Barcode size selection
 n4 = Barcode Height (In Dots)

1D BARCODES MENU
 [1] Code 39
 [2] Interleaved 2 of 5
 [3] Code 93
 [4] Code 128
 [m] Back to Main Menu
Please choose a barcode to print: _
```

n1 = Barcode Type

- 0 = UPC-E
- 1 = UPC-A
- 2 = JAN/EAN8
- 3 = JAN/EAN13
- 4 = Code39
- 5 = ITF
- 6 = Code128
- 7 = Code93
- 8 = NW-7

n2 = Under-bar character selection and added line feed selection

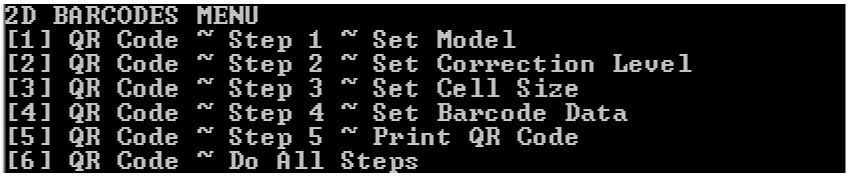
- 1 = No added under-bar characters & Executes line feed after printing barcode
- 2 = Adds under-bar characters & Executes line feed after printing barcode
- 3 = No added under-bar characters & doesn't line feed after printing barcode
- 4 = Adds under-bar characters & doesn't line feed after printing barcode

n3 = Barcode mode selection specifies the size of the narrow and wide barcode lines

n4 = Barcode height (dot count)

2D Barcodes

QR Codes



```
2D BARCODES MENU
[1] QR Code ~ Step 1 ~ Set Model
[2] QR Code ~ Step 2 ~ Set Correction Level
[3] QR Code ~ Step 3 ~ Set Cell Size
[4] QR Code ~ Step 4 ~ Set Barcode Data
[5] QR Code ~ Step 5 ~ Print QR Code
[6] QR Code ~ Do All Steps
```

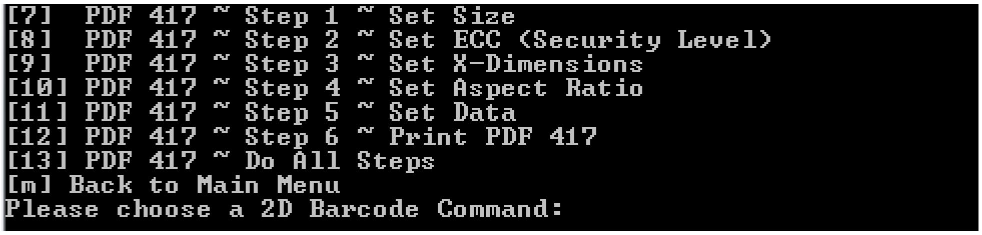
There are 5 commands below that are very important to printing a good QR code.

(1) Set QR Code Model #	ESC GS y S 0 *n*
(2) Set QR Code Correction Level	ESC GS y S 1 *n*
(3) Set QR Code Cell Size	ESC GS y S 2 *n*
(4) Set QR Code Data	ESC GS y D 1 NUL *n*L *n*H *d1…dk*
(5) Print the QR Code	ESC GS y P

Here is the order in which commands need to be sent to the printer for it to print the QR code.

QR model + QR Correction Level + QR Cell Size + QR Data + Print QR Code

PDF417



```
[7]  PDF 417 ~ Step 1 ~ Set Size
[8]  PDF 417 ~ Step 2 ~ Set ECC (Security Level)
[9]  PDF 417 ~ Step 3 ~ Set X-Dimensions
[10] PDF 417 ~ Step 4 ~ Set Aspect Ratio
[11] PDF 417 ~ Step 5 ~ Set Data
[12] PDF 417 ~ Step 6 ~ Print PDF 417
[13] PDF 417 ~ Do All Steps
[m] Back to Main Menu
Please choose a 2D Barcode Command:
```

Please visit page 3-120 in the Line Mode Spec Manual for more details on PDF417

(1) Set PDF417 barcode size	ESC GS x S 0 n p1 p2
(2) Set PDF417 ECC (Security Level)	ESC GS x S 1 n
(3) Set PDF417 module X direction size	ESC GS x S 2 n
(4) Set PDF417 module aspect ratio	ESC GS x S 3 n
(5) Set PDF417 barcode data	ESC GS x D nL nH d1 d2 … dk
(6) Print PDF417 barcode	ESC GS x P

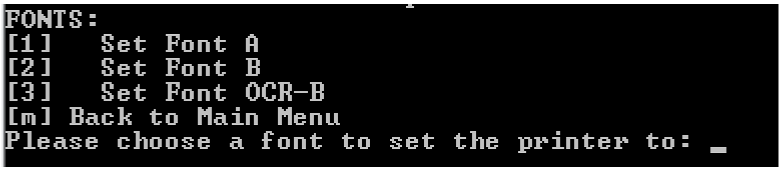
Here is the order in which commands need to be sent to the printer for it to print the PDF417.

PDF417 Size + PDF417 ECC + PDF417 X-dim + PDF417 Ratio + PDF417 Data + Print PDF417

Change Font

Changing the font on the printer can be done with the following commands.

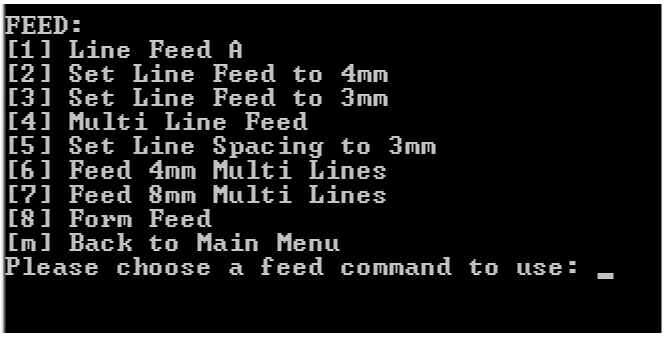
ESC RS F n	n = 0 for A, 1 for B, 10 for OCR-B



```
FONTS:
[1]   Set Font A
[2]   Set Font B
[3]   Set Font OCR-B
[m] Back to Main Menu
Please choose a font to set the printer to: _
```

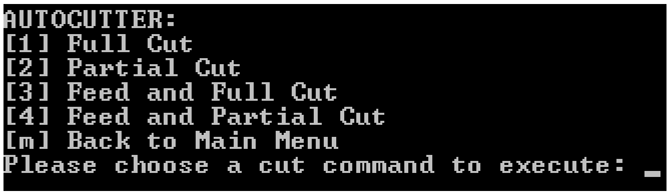
Feed

The feed commands are very straight forward. Use LF for best results.



```
FEED:
[1] Line Feed A
[2] Set Line Feed to 4mm
[3] Set Line Feed to 3mm
[4] Multi Line Feed
[5] Set Line Spacing to 3mm
[6] Feed 4mm Multi Lines
[7] Feed 8mm Multi Lines
[8] Form Feed
[m] Back to Main Menu
Please choose a feed command to use: _
```

Cut



```
AUTOCUTTER:
[1] Full Cut
[2] Partial Cut
[3] Feed and Full Cut
[4] Feed and Partial Cut
[m] Back to Main Menu
Please choose a cut command to execute: _
```

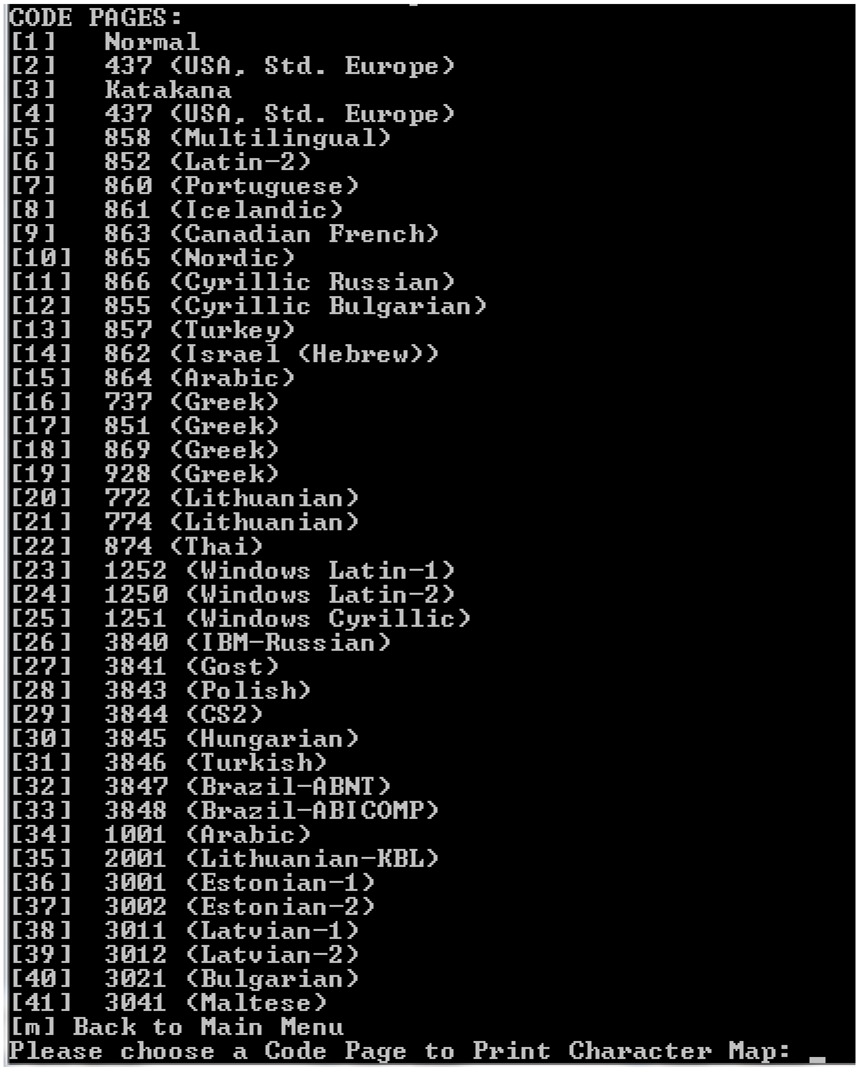
Partial Cut	ESC d 1 or 3
Full Cut	ESC d 0 or 2

Code Pages

To set a code page on the printer:

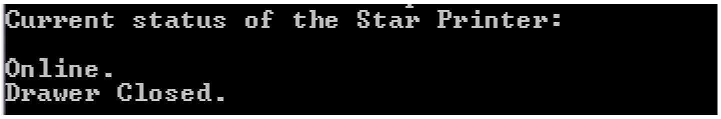
ESC GS *t* n

n = The Code Page Selection Index



```
CODE PAGES:
[1]   Normal
[2]   437 (USA, Std. Europe)
[3]   Katakana
[4]   437 (USA, Std. Europe)
[5]   858 (Multilingual)
[6]   852 (Latin-2)
[7]   860 (Portuguese)
[8]   861 (Icelandic)
[9]   863 (Canadian French)
[10]  865 (Nordic)
[11]  866 (Cyrillic Russian)
[12]  855 (Cyrillic Bulgarian)
[13]  857 (Turkey)
[14]  862 (Israel (Hebrew))
[15]  864 (Arabic)
[16]  737 (Greek)
[17]  851 (Greek)
[18]  869 (Greek)
[19]  928 (Greek)
[20]  772 (Lithuanian)
[21]  774 (Lithuanian)
[22]  874 (Thai)
[23]  1252 (Windows Latin-1)
[24]  1250 (Windows Latin-2)
[25]  1251 (Windows Cyrillic)
[26]  3840 (IBM-Russian)
[27]  3841 (Gost)
[28]  3843 (Polish)
[29]  3844 (CS2)
[30]  3845 (Hungarian)
[31]  3846 (Turkish)
[32]  3847 (Brazil-ABNT)
[33]  3848 (Brazil-ABICOMP)
[34]  1001 (Arabic)
[35]  2001 (Lithuanian-KBL)
[36]  3001 (Estonian-1)
[37]  3002 (Estonian-2)
[38]  3011 (Latvian-1)
[39]  3012 (Latvian-2)
[40]  3021 (Bulgarian)
[41]  3041 (Maltese)
[m] Back to Main Menu
Please choose a Code Page to Print Character Map: _
```

Getting Parsed Status of the Printer



```
Current status of the Star Printer:

Online.
Drawer Closed.
```

The SDK also has functions for a full sample receipt which shows how to do text formatting. You can also kick the cash drawer and reset the printer.

Tips for App Development when using StarIO

Star Micronics prides itself as the industry leader in great POS products and with great power comes great responsibility. Below is a tips section just to help you get on the fast track to software development with StarIO.

TIP #1: If you are going to be coding a large project, create a class to abstract all the printing methods into class(s) instead of having the code reside in the main code block. This will help with code reusability and will also save you time in the long run from having to find one line of code in the main code. By having StarIO only reside in the class(s), you will be fully taking advantage of object oriented programming.

TIP #2: Know what the differences and definitions of (ASCII & Unicode), (Hex & Decimal), and (Byte & Char) are. A byte is normally 8-bits long which would be 8 digits of binary (1s and 0s). These bytes are just 8 bits of binary data but bytes can also be int or char. The three different variable types basically hold the data in the same way but there are slight differences. Try to code with Bytes instead of Chars, ints, or strings when choosing a variable to contain your print job data. ASCII to Unicode and vice versa conversions are sometimes unsecure so make sure you know what and how the encoding class works with these. Big mistakes made in Unicode are culture-sensitive search and casing, surrogate pairs, combining characters, and normalization which are answered here.

TIP #3: HEX DUMP MODE! If you are debugging and your application seems to have a bug in it use hex dump mode on the printer. This is the best way to verify what is being sent out of the computer is being received correctly. To put the printer in hex dump mode, turn the printer off, open the cover to the paper, hold the feed button down, turn the printer back on, close the cover, let go of the feed button. Hex dump mode is a sure fire way to verify hex data is sent correctly. When in hex dump mode, printer functions will not work.

TIP #4: Do not waste time trying to reverse engineer StarIO command codes. All the available StarIO commands are available in the Thermal Line Mode Spec Manual and that is the best resource to use when researching a specific StarIO command. This SDK & Manual was built to help you (The Developer) have a very easy job ahead of you to program for Star Printers.

TIP #5: If there is a command that is not covered in this SDK but you wish to see a code snippet of that command in use then visit our Developers' section for a possible code block that matches your needs.

TIP #6: StarIO, ESC/POS, UPOS: JavaPOS, POS for .NET, & OPOS are all different ways to communicate with the printer. Visit our Developers' section for more info on these. This SDK covers StarIO only.

Additional Resources

This section will share resources that will help you develop good software with StarIO.

Star Micronics Developers Network

Browse Star Micronics' FAQs, ask a question, look up information, etc.

The Developers Network gets you access to:

- Updated Versions of this Manual and Source Code
- Getting Started Advice and Industry Information
- Star Micronics Printer Drivers
- Technical Questions/Support

Download the Star Thermal Line Mode Command Spec Manual

Use it as your reference for all StarIO Line Mode commands.

Unicode.org

The Unicode Consortium – Good place to learn more about Unicode.

1D Barcodes

Barcode Island is a great resource for specs on 1D barcodes.

2D Barcodes

Great place for information on 2D Barcodes, QR Codes, and PDF417

Code Pages

Learn about Code Pages here.

ASCII Table Resource

ASCII	Hex	Symbol	ASCII	Hex	Symbol	ASCII	Hex	Symbol	ASCII	Hex	Symbol
0	0	NUL	16	10	DLE	32	20	(space)	48	30	0
1	1	SOH	17	11	DC1	33	21	!	49	31	1
2	2	STX	18	12	DC2	34	22	"	50	32	2
3	3	ETX	19	13	DC3	35	23	#	51	33	3
4	4	EOT	20	14	DC4	36	24	$	52	34	4
5	5	ENQ	21	15	NAK	37	25	%	53	35	5
6	6	ACK	22	16	SYN	38	26	&	54	36	6
7	7	BEL	23	17	ETB	39	27	'	55	37	7
8	8	BS	24	18	CAN	40	28	(	56	38	8
9	9	TAB	25	19	EM	41	29	)	57	39	9
10	A	LF	26	1A	SUB	42	2A	*	58	3A	:
11	B	VT	27	1B	ESC	43	2B	+	59	3B	;
12	C	FF	28	1C	FS	44	2C	,	60	3C	<
13	D	CR	29	1D	GS	45	2D	-	61	3D	=
14	E	SO	30	1E	RS	46	2E	.	62	3E	>
15	F	SI	31	1F	US	47	2F	/	63	3F	?

ASCII	Hex	Symbol	ASCII	Hex	Symbol	ASCII	Hex	Symbol	ASCII	Hex	Symbol
64	40	@	80	50	P	96	60	`	112	70	p
65	41	A	81	51	Q	97	61	a	113	71	q
66	42	B	82	52	R	98	62	b	114	72	r
67	43	C	83	53	S	99	63	c	115	73	s
68	44	D	84	54	T	100	64	d	116	74	t
69	45	E	85	55	U	101	65	e	117	75	u
70	46	F	86	56	V	102	66	f	118	76	v
71	47	G	87	57	W	103	67	g	119	77	w
72	48	H	88	58	X	104	68	h	120	78	x
73	49	I	89	59	Y	105	69	i	121	79	y
74	4A	J	90	5A	Z	106	6A	j	122	7A	z
75	4B	K	91	5B	[	107	6B	k	123	7B	{
76	4C	L	92	5C	\	108	6C	l	124	7C	|
77	4D	M	93	5D	]	109	6D	m	125	7D	}
78	4E	N	94	5E	^	110	6E	n	126	7E	~
79	4F	O	95	5F	_	111	6F	o	127	7F	

Star Micronics is a global leader in the manufacturing of small printers. We apply over 50 years of knowhow and innovation to provide elite printing solutions that are rich in stellar reliability and industry-respected features. Offering a diverse line of Thermal, Hybrid, Mobile, Kiosk and Impact Dot Matrix printers, we are obsessed with exceeding the demands of our valued customers every day.

We have a long history of implementations into Retail, Point of Sale, Hospitality, Restaurants and Kitchens, Kiosks and Digital Signage, Gaming and Lottery, ATMs, Ticketing, Labeling, Salons and Spas, Banking and Credit Unions, Medical, Law Enforcement, Payment Processing, and more!

High Quality POS Receipts, Interactive Coupons with Triggers, Logo Printing for Branding, Advanced Drivers for Windows, Mac and Linux, Complete SDK Packages, Android, iOS, Blackberry Printing Support, OPOS, JavaPOS, POS for .NET, Eco-Friendly Paper and Power Savings with Reporting Utility, ENERGY STAR, MSR Reading, *future*PRNT, StarPRNT… How can Star help you fulfill the needs of your application?

Don’t just settle on hardware that won’t work as hard as you do. Demand everything from your printer. Demand a Star!

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